

REMARKS

Claims 1-38, as amended, and new claims 39-50 appear in this application for the Examiner's review and consideration.

Claim 1 has been amended to recite that the stabilizing agent is a nucleophile that contains at least one lone pair of electrons for reaction with the aroma providing component, while the aroma-providing component is further defined as being isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material. Claims 14 and 17 have been amended to be consistent with amended claim 1 and to recite that the nucleophile contains at least one atom of sulfur or nitrogen for providing the at least one lone pair of electrons. Claim 25 has been amended to clarify that a liquid is an optional component. Claims 26 and 35 have been amended to recite the source and separate storage of the stabilized aroma-providing component. New claims 39-50 have been added to cover preferred features of the invention. All the claim changes and additions are clearly supported by the specification so that there is no issue of new matter.

The claims were rejected over either of Reich US patent 3,421,906 or Belrhliid et al. ("Belrhliid") European patent application 963,706 for the reasons set forth on pages 2-3 of the action.

Present claim 1 recites a process for stabilizing an aroma-providing component against loss or degradation of desirable flavor or sensory characteristics of its aroma during storage. This process comprises providing a stabilizing agent of a nucleophile that contains at least one lone pair of electrons for reaction, and contacting the stabilizing agent with an aroma-providing component that is isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material, with the contacting being made in a manner such that the stabilizing agent is provided in an amount effective to chemically interact with undesirable compounds associated with the aroma-providing component. This forms a stabilized aroma-providing component which: (a) retains a significant portion of one or more of the desirable flavor or sensory characteristics of the aroma in the aroma-providing component during storage, or (b) reduces off flavor generation during storage of the aroma-providing component. Next, the process includes storing either (i) the stabilized aroma-providing component or (ii) the aroma-providing component in contact with the stabilizing agent, so that the stabilized aroma-providing component is essentially free of the stabilizing agent when removed from storage for preparing a food or beverage product for consumption, so that the aroma-providing

component can impart to the product an improved or enhanced aroma compared to the aroma provided by an unstabilized aroma-providing component.

Thus, the invention is not directed to the simple addition of a treating, stabilizing or aroma-improving agent to a foodstuff, but instead to the treatment or stabilization of a component of the foodstuff that provides an aroma. By itself, the aroma-providing component is insufficient to form a food or beverage, but instead is an additive to the food or beverage when forming such products. This component is stabilized against degradation and the stabilized component is separately stored so that the component can maintain the ability to impart desirable flavor or sensory characteristics of the aroma to the food, beverage, food-forming or beverage-forming material when forming a product for consumption. By adding a stabilized component during preparation and preferably immediately prior to consumption, the resultant product contains an improved or enhanced aroma compared to one prepared with an untreated aroma-providing component.

In contrast, Reich discloses a method for treating roasted coffee to avoid staling. That method includes the treatment of coffee with sulfur dioxide or a salt that releases sulfur dioxide in combination with ammonia to remove acrid sulfur dioxide odors. This treatment is performed to stabilize coffee flavor and aroma so that without introducing objectionable aromas or odors. This results in the retention of the desirable coffee flavors and aromas while also preventing staling of the coffee during packaging and storage. To do this, Reich adds sulfur dioxide vapor directly to the coffee, such as by introducing it into the grinding chamber of the mill used to grind roast coffee either along with or preceded by a stream of ammonia. Thereafter, Reich subjects the treated coffee to carbon dioxide stripping to remove the sulfur dioxide and ammonia vapors before packaging the treated product.

The present invention, as defined by claim 1, is patentable over Reich because Reich does not disclose the separate storage of a stabilized aroma-providing component prior to contact with a further component to form a food or beverage product. Instead, Reich either (1) combines a treating agent such as sulfur dioxide with the ground coffee to treat it, but does not form a beverage or food product from a treated aroma-providing component until after storage, or (2) treats the coffee and then removes the agent prior to packaging. Even when Reich discloses the treatment of a component such as coffee oil, he does not teach that the treated component should be separately stored. Instead, the treated coffee oil is added to the coffee product and is stored together until usage. These

situations are not covered by the claims of the present invention. Instead, the present invention provides significant improvements in the aroma of the resulting product by treating the aroma-providing component with a stabilizing agent and then storing the stabilized component, alone or in contact with the stabilizing agent, separately from food, beverage, food-forming or beverage-forming materials until a product is prepared for consumption. Thus, when a beverage or food is formed with the stabilized aroma-providing ingredient, an improved and enhanced aroma is obtained in the product compared to products prepared with an untreated aroma-providing component or to products that are stored together with a treated aroma-providing component.

In coffee, for example, conventional non-treated or non-stabilized coffee aroma contain amounts of methane thiol and pyrrole that typically degrade or diminish to almost undetectable levels over the course of several months when the components are stored at room temperature. Even if a treating or stabilizing agent is added to the final product that contains a non-treated aroma providing component, these volatiles are substantially degraded because the treating agent is added to the whole food matrix and is integrated therewith so that less of it is available to interact with the aroma-providing component. In contrast, the treated aroma-providing components of the invention, or the aroma-providing component and the stabilizing agent, are separately stored so that they possess a significantly reduced degradation profile compared to the conventional components. For example, methane thiol and pyrrole levels remain at more than 30% of the initial levels after storage at ambient temperature over a period of at least 6 months. This enables the component to impart enhanced amounts of those compounds into the beverage product when it is formed, so that the beverage has a fresher taste and flavor. As noted above, while Reich does have a treating agent in contact with ground coffee at one point in the process, he either does not use that combination to form a beverage for consumption or he separates out the treating prior to packaging the coffee which is later used to make a beverage for consumption.

Present claim 26 is directed to a packaged food or beverage product in the form of a package that contains therein a stabilized aroma-providing component having preserved or improved desirable flavor or sensory characteristics and being present in an amount sufficient to provide or impart its flavor or sensory characteristics to the product. Again, the aroma-providing component is isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material and is stabilized with a stabilizing agent that is immobilized in, upon or within the package or upon or within a carrier

placed upon or within or forming part of the container such that the stabilizing agent is readily separable or removable from the aroma-providing component, or the aroma-providing component is readily separable from the stabilizing agent, before combining the stabilized aroma-providing component with a further component of a food, beverage, food-forming or beverage-forming material and optionally with a liquid to form a product for consumption. This food or beverage product is essentially free of the stabilizing agent when the product is prepared for consumption and further wherein the loss or degradation of the desirable flavor or sensory characteristics of the stabilized aroma-providing component are reduced or prevented during storage such that the aroma-providing component retains its desirable flavor or sensory characteristics during an extended periods of storage at room temperatures.

Claim 26 is patentable over Reich for the same reasons as claim 1. In addition, Reich does not disclose a packaged food or beverage product that can be provided by a food, beverage, food-forming or beverage-forming material and the previously described stabilized aroma-providing component, wherein that component is stored separately from the other material. As noted, Reich removes the treating agent from the product prior to storage, whereas applicants store the stabilized component separately from the food or beverage forming component prior to formation of the product so that, upon preparation, the unexpected advantages in flavor and aroma can be achieved.

Present claim 35 is directed to a stabilized aroma-providing component having enhanced and/or preserved desirable flavor or sensory characteristics and being sufficient to provide or impart flavor or sensory characteristics to its intended products. This component is isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material and stabilized with a stabilizing agent that is removed prior to the packaging. Alternatively, the component is immobilized in, upon or within the package or upon or within a carrier that is placed upon or within the container such that the stabilizing agent is readily separable or removable from the aroma-providing component, or the aroma-providing component is readily separable from the stabilizing agent before combining the stabilized aroma-providing component with a further component of a food, beverage, food-forming or beverage-forming material and optionally with a liquid to form a product. The resulting food or beverage product is essentially free of the stabilizing agent and further wherein the loss or degradation of the desirable flavor or sensory characteristics of the stabilized aroma-providing component are reduced or prevented during storage such that it retains its desirable flavor or sensory

characteristics during storage of the product for an extended period of time at ambient or room temperatures.

Claim 35 is patentable over Reich for the same reasons as claims 1 and 26. There is no disclosure in Reich of an aroma-providing component that is isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material and that is stabilized with a stabilizing agent that is later removed prior to the packaging. Thus, all rejections based on Reich have been overcome and should be withdrawn.

As to the Belrhld reference, applicants note that it is simply not relevant to the present claims because it has no disclosure of any treating or stabilizing agent. Instead, Belrhld discloses sulfur containing precursors that can be added to a food or beverage to generate flavoring components when heated. As noted, the simple addition of compounds to foodstuffs is not what is disclosed or claimed in the present invention. Belrhld does not disclose that a stabilizing agent is present with the aroma-providing component or that a stabilized aroma-providing component is stored separately prior to combining the component with a further component of a food, beverage, food-forming or beverage-forming material and optionally with a liquid to form a product for consumption. Instead, Belrhld discloses a precursor mixture of flavorings that generate a grilled note (or similar flavors) when heated. The present invention is instead directed at providing significant improvements in the aroma of the resulting product by maintaining the stabilized aroma-providing ingredient (either the combination of the aroma-providing agent and the stabilizing agent or the stabilized aroma-providing component) during packaging and storage so that, when a beverage or food is formed with the stabilized aroma-providing ingredient, improved and enhanced aroma is obtained in the product compared to products prepared with an untreated aroma-providing component. One of ordinary skill in the art would recognize the difference between the use of a flavoring agent for taste improvement compared to the treatment or stabilization of an aroma-providing component to provide aroma improvement, so that the rejection over Belrhld has been overcome and should be withdrawn.

Claim 26 is also patentable over Belrhld, because Belrhld does not disclose a packaged food or beverage product that can be made by a food, beverage, food-forming or beverage-forming material and the previously described stabilized aroma-providing component wherein the component is separately stored from the material until the combination is to be used to prepare a food or beverage product for consumption. As noted, Belrhld is not concerned with the stabilization of an aroma and instead is

concerned with flavor modification when heat is added to a product. In contrast, applicants provide a combination where a separately stabilized and stored aroma-providing component is provided with a food or beverage forming component so that, upon preparation, unexpected advantages in aroma can be achieved. When aroma-providing components such as coffee aroma are stabilized as taught by the present invention, significant benefits are achieved as explained above and as further explained in the specification. In view of the preceding, it is respectfully submitted that all rejections based on Belrhld have been overcome and should be withdrawn.

Claim 35 is patentable over Belrhld for the same reasons as claims 1 and 26. There is no disclosure in Belrhld of an aroma-providing component that is isolated, concentrated or separated from a food, beverage, food-forming or beverage-forming material and that is stabilized with a stabilizing agent that is later removed prior to the packaging. Thus, all rejections based on Belrhld have been overcome and should be withdrawn.

Accordingly, the entire application is now believed to be in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree that all claims are patentable, then a personal or telephonic interview is respectfully requested to discuss any remaining issues in order to expedite the eventual allowance of this application.

Respectfully submitted,

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Date

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